Metrology for meteorology and climate

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For a few years now, a fruitful collaboration has been growing between the metrology and meteorology communities. The main need expressed by top level Institutions was for the availability of robust data for environmental and meteorological studies and for the benefit of the present and future generations of climatologists. This was translated by the metrology community into two key objectives centred on traceability and uncertainty. Essential Climate Variables (ECVs) are continuously recorded by a multitude of different sensors on satellites, balloon radiosondes, aircraft, surface weather stations, buoys, and deep sea devices; all of them working in different operating environments and affected by different influence quantities. This complex system, as a whole, requires dedicated calibration techniques and methods to guarantee fully documented traceability and measurements uncertainty evaluation, thus ensuring complete comparability of measurement results. The inclusion of measurement uncertainty in historical and future data series represents a fundamental step towards greater public confidence in evaluations of climate change. EURAMET, the European association of national institute of metrology is funding several joint research projects on those topics and is launching a task group of experts, formed by both metrologists and members of environmental, meteorological Institutions and climatologists.
One of those projects, “MeteoMet” (www.meteomet.org), started in 2011 and re-funded in 2014, stands out since it hits both targets: improve the traceability of an increasing number of ECVs and promote the involvement of stakeholders in support of their needs.
This mission leads to a novel vision: a permanent cooperation between metrology and meteorology based on new and existing institutions and infrastructures.